

THE SLUGS
OF THE MALTESE ISLANDS

BY

A. CARUANA GATTO, B.A., LL.D.



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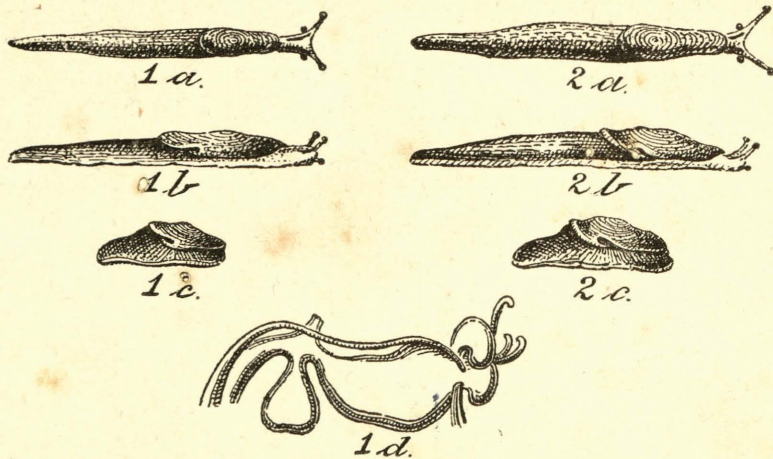


Fig. 1. a, b, c—AGRIOLIMAX CARUANÆ POLLONERA.

Fig. 1. d—Generative system of the same.

Fig. 2. a, b, c—LIMAX MELITENSIS LESS.-ET POLLONERA.

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Slugs have been in all works dealing with the Maltese Molluscs either omitted all together as by Ponsonby, Benoit and Gulia, or the two species mentioned by Mamo in his "Enumeratio ordinata molluscorum Gauto Melitensium" edited by Dr. A. A. Caruana, have been simply referred to. Mamo mentions in this work the *Limax variegatus=flavus* and the *L. gagates* which includes the *nigricaus*.

Fielden in the Zoologist No. 29. Vol. III May 1879. "The land and freshwater Molluscs of the Maltese Group" refers to these two species, saying that the slugs collected by him, not having been kept in alcohol, could not be determined. Becher in the Journal of Conchology No. 8. Oct. 1884 declares that he did not care for the Limaces, and reproducing the *L. flavus* and the *L. gagates* of Mamo's list he adds:—

"Slugs are usually to be seen in damp weather, feeding on human excrement on the roadside; another favourite resort is at the mouth of old wells which are covered over with a door."

Issel in the Bollettino Malacologico Italiano, 1868, Anno 1, No. 1, — "Dei molluschi terrestri e d'acqua dolce raccolti nell' Arcipelago di Malta" mentions a new species of slug, found by him in Malta, at Valletta outside of Porta Reale, resembling the *agrestis*, but with the shield not *striate* nor *keeled*.

This species in the "Monografia dei Limacidi Italiani" was by Lessona and Pöllonera named

L. melitensis, but owing to the short and incomplete description which Issel had given of it, it was by them put amongst the doubtful species; the more so that the only specimens collected by Issel had been lost before he had described it. Nor could it be well classified, because whilst all its characters referred it to a *Limax*, the shield was said to be *granular* and in the *Limaces* it is never such.

The doubts about this local slug so little known made me look very carefully for it in the locality where Issel said he had collected it and I succeeded in finding several specimens, in which I soon observed that the shield was *not granular*.

I sent these together with all the other species I had collected here to Prof. Pollonera of Turin, and he published under the title of *Appunti di "Malacologia—Intorno ai Limacidi di Malta"* in the "*Bollettino dei Musei di Zoologia ed Anatomia comparata della R. Università di Torino, Vol. VI. No. 99, Aprile 1891*"—a very interesting note on our slugs, in which besides rectifying the first description of the *Limax melitensis*, given by Issel, he described a new species found among those I had sent to him, which he very kindly named after me *Agriolimax Caruanae*.

To Prof. Pollonera's paper there is little to be added, except with regard to some details concerning the description of the last mentioned species and the general distribution of all our slugs; but, even if there had been nothing to change or to add to it, his note is so little known, and it is such an important contribution to the knowledge of our land molluscs that it would be worth while going over the subject again.

Being sure that the opinion of such an authority will be duly appreciated I give Prof. Simroth's opinion on our two characteristic slugs which afterwards I had occasion to send to him, as also the figures both of *L. melitensis* and *A. Caruanae*, as I do not know that they have yet been figured.

Besides the following five species of slugs, Prof. Pollonera says in his note that I had sent to him some young specimens of an *Amalia* which he thought different from our other two species, and he adds that I had told him of the existence of another small *Limax* which I had not sent to him. I am bound to say that as to the *Amalia* I have now no doubt that it is only the so much varying *A. gagates*, and as to the *Limax* it is only the young state of the *L. melitensis*, which when young by its dark colour and slender body is easily mistaken for a new form.

The slugs therefore which have been till now collected in our Islands are:—

1. LIMAX FLAVUS L. — *Maltese-Bugharuiental-biar.*

Limax variegatus, Drap.

” ” *Mamo.*
” *flavus* *Pollonera.*

It is nocturnal in its habits; common in summer at the mouth of wells, in cellars and other damp and dark places.

2. LIMAX MELITENSIS LESS. ET POLLONERA.—
Figs. 2 a, 2 b., 2 c

L. elongato conicus, minute et dense verrucosus, postice attenuatus, brevissime carinatus pallide cinereus unicolor; clypeo subtiliter concentricè sulcato, postice perobtuse subangulato; capite albido, tentaculis pallide cinereis; solea pallida, unicolore. Mucus aqueus decoloratus.

Longit. 50-55 Mill.

Quum in alcohol versatur animal fuscum sit et clypeo nigrozonato patet. (Pollonera).

The living animal is of an uniform ashy colour, generally very pale, at the sides almost white, and it shows no trace of any spots or zones. When immersed in alcohol it becomes of a brownish tint on its back and on the shield, the white being preserved at its shield and on the shield appear two longitudinal lateral zones of a dark colour.

Prof. Pollonera speaking of this species says that although the chief character mentioned by Issel, the granularity of the shield, failed on a close examination, yet the *L. melitensis* is not only a species well distinct from others, but that a particular section ought to be made for it in the Genus *Malacolimax* where it should find its place.

“ I establish then, he says, for this species the subgenus *Melitolimax*, which preserving the radula of the other *Malacolimaces*—central tooth triaculeate, median teeth biaculeate—has a generative system similar to that of the *Lehmannia*, viz the very short, with a latero-terminal flagellum.

The digestive tube has six circinvolutions the last of which is provided with a caecum of smaller dimensions than that observed by me in *M. Valentianus Fer.*”

The subgenus *Melitolimax* is according to his opinion a connective link between the *Lehmannia* and the true *Malacolimax*.

Prof. Simroth on his part regards this species as a true *Lehmannia* allied to *L. arborum Bonch (marginatus Mull)*. He remarks to me that the *L. melitensis* has the penis gland (*flagellum*) a little longer than in the *L. valentianus*, which he regards

as a variety of *L. arborum*, and that the *L. melitensis* might as well be considered as another marked variety of the *L. arborum*. He therefore does not acknowledge the necessity of creating a new subgenus for it.

Whether it be considered as a distinct species by itself or a variety of *L. arborum*, its affinities with *L. valentianus* are certainly very marked, and the question as to under what section it must fall depends from the greater or less extension which is given to these, what is important for us to state is that specifically regarded, *L. melitensis* is a well defined local form.

I have met with this slug under moist stones in many other places in Malta, besides the locality mentioned by Issel e. g. Makluba, Uied Encita, Fort Manoel, Imtahleb; but it is never abundant. I have never found it in Gozo.

I must also note a *forma pallidissima* of it, of a very pale colour, which I found with the type at Makluba.

3. AGRIOLIMAX CARUANÆ POLLONERA.—Figs. 1 a, 1 b, 1 c.

L. plerumque parvulus, elongatus mediocriter rugosus, dorso minute verrucoso, fusco rufescente unicolore nel rare maculato punctulato, postice angustato, brevi carinato, carina nigricante; clipeo magno, elongato, grosse rugoso, pallide bruno, rare et minutissime fusco punctulato; solea albida unicolore; capite tentaculisque ceneris, Mucus aqueus decoloratus. Longit. max. 45-50 mill.

In wet and moist localities under stones; e. g. Imtahleb, Boschetto, Makluba; Migiarrò, Gozo; but it does not appear to be at all common.

There is a *forma concolor* of this slug, which has no points whatever, and is shield and all of an uniform tint. I collected it at Migiarro, Gozo.

In alcohol this species looks like a small *A. agrestis* from which it differs principally in the blackish carina which shows itself in dark relief on the back. The living animal differs from the *A. agrestis* much more, because besides the above mentioned character it differs in its general gelatinous appearance, in having a transparent and watery mucus instead of a milky and opaque one; in the length of the shield and in its rugosities which are rougher and less numerous than those of *A. agrestis* approaching it to *A. brunneus*. Anatomically *A. Caruanae* differs from the *A. agrestis* in its generative system (Fig. 1 *d.*) It has like the *agrestis* the sack of the verge turgid and swollen but at its superior extremity there are two thick protuberances, elongated, rounded and curved, between the bases of which rise 3 or 4 flagelliform appendages, slender, smooth, of different dimensions and independent of one another from their base. While in the *A. agrestis* of the end of the sack of the verge there are one or two flagelliform appendages more or less branched and these branches are almost festooned and not smooth.

Besides these differences Prof. Simroth observes that *A. Caruanae* has not the short coecum on the rectum of *A. agrestis*, and he has noted to me that the first, inside the verge, has a stimulating papilla somewhat greyish, flat and shorter than that of *A. agrestis*.

According to Prof. Simroth it is allied to *A. nitidus*, *Morelet* and *A. Maltzani Simroth*, but it

quite deserves to be considered as a distinct local species.

4. AMALIA CARINATA RISSO.

I have found this species only in the ditches outside of Porte des Bombes Floriana, where in its proper season, it is very plentiful, under stones.

Prof. Pollonera notes the remarkable development of the vestibular prostate, which sometimes in our *A. carinata*, takes a glanduliform appearance but having noticed this difference in the same species from Messina and also in the *A. gagates* from Sicily and Sardinia he does not consider it of sufficient importance to constitute a variety of the typical *A. carinata*.

5. AMALIA GAGATES DRAP. *Maltese-Bugharuientat-torok.*

Limax nigricans, Mamo.

„ *gagates, „*

„ *nigricans, Issel.*

It is the commonest species found under stones in all damp places in Malta and Gozo e. g. Marsa, Fort Manoel, Hauli, Corradino, Ghirghenti etc, Migiarro, Xlendi, S. Blas etc.

It presents itself in three colour variations viz:—

a. *Forma typica*—Shield and back very black; pale sides.

b. *plumbea Moq. Tand*—Shield and back grey more or less dark; whitish sides.

c. *F. pallidissima, Pollonera*—Totally whitish or ashy pale, when the animal is living.

When it is immersed in alcohol it appears like the preceding variety, preserving only a lighter tint. But between this and the former variation there are many intermediate ones which offer all shades from black to an ashy white.

To conclude it remains to me only to say that with the exception of *L. flavus*, which is on the contrary commoner in summer, all the other species must be looked for from September to April, so that after a shower or a rainy day anyone may collect in winter a good number of specimens of all species. One more detail I wish to add is about the voracity of *L. gagates*, which has in several instances killed and devoured *L. melitensis*, *A. Caruana*, and even big specimens of *L. flavus* when put together. *L. gagates* and *L. flavus* are two species which cause often not indifferent damage both to kitchen and flower gardens.
